

## HOMEWORK 3

### **Physics 311 Mechanics Spring, 2003**

Solve the first two problems and any other 3.

1. A boat is slowed by a frictional force  $F(v)$ . Its velocity decreases according to the formula

$$v(t) = c^2(t - t_1)^2 \quad (1)$$

where  $c$  is a constant, and  $t_1$  is the time at which it stops. Find the force  $F(v)$  as a function of  $v$ .

2. Find the steady state solution for a damped harmonic oscillator driven by the force  $F(t) = F_0 \sin \omega t$

3. Landau, §22. #2

4. Landau, §22. #4

5. Landau, §22. #5

6. Landau, §21. #4

7. Landau, §26

8. Landau, §27 #1